UNITED STATES PATENT AND TRADEMARK OFFICE

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10/784,170	02/24/2004	Dae-Whan Back	46158	8281

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ART UNIT	PAPER NUMBER
2619	

MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/784,170	BACK, DAE-WHAN
	Examiner	Art Unit	
	KHUONG TRAN	2619	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS,
WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 January 2008*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 February 2004* is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Response to Arguments

1.   Applicant's arguments, see pages 3-5, filed 15 January 2008, with respect to claims 1 and 6 have been fully considered and are persuasive. The claim rejections 35 U.S.C. § 102(b) and § 103(a) of claims 1-10 have been withdrawn.

Claim Rejections - 35 USC § 103

2.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3.   Claims 1-3 and 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsztoo et al (U.S Patent No. 6,639,915 B1) in view of Kuehnel et al (U.S Patent No. 5,907,542).

        Regarding claim 1, a symbol buffer memory device **(934, FIG. 9)** of a base station modem **(900, FIG. 9)**, in which the symbol data **(i.e., voice data)** is stored for transmission to a physical layer **(column 13, lines 38-41)** comprising:

-       a buffer memory **(voice packet buffer memory 934, FIG. 9)** for

        storing the symbol data for the logical channel according to input

        sequences **(i.e., input CHANNEL_ADD, FIG. 9)** so that the symbol

data between logical channels are stored in a continuous arrangement
(column 10, lines 12-13, 29-32);

- a start address table **(i.e., channel address memory 922, FIG. 9)** for
storing address information according to the logical channels **(column
15, lines 51-53)**, each of the address information indicating a location
of initial symbol data corresponding to each of the logical channels
from among the symbol data stored in the buffer memory **(column 15,
lines 11-19)**; and

- a multiplexer **(930, FIG. 9)** for selectively outputting the address
information stored in the start address table **(922, FIG. 9)** by an enable
signal (i.e., enable signal sent from **request arbiter 928 to mux 930)**
set for each of the logical channels **(column 12, lines 50-54)**.

However Tsztoo et al fail to disclose the symbol memory buffer of the
base station modem belongs to a mobile communication system, in which the
symbol data corresponding to at least one logical channel and coded in at least
one encoding ratio is stored. Kuehnel et al teach a telecommunication network,
with emphasis on wireless mobile telecommunication system, for providing
signaling techniques using ATM technology. According to the teaching, the
encoded symbol data **(column 6, lines 11-14)** sent from logical channels **(i.e.,
virtual channels)** are stored in a dedicated memory of a mobile terminal
(column 6, lines 7-10). Therefore, it would have been obvious to one with
ordinary skill in the art at the time of the invention was made to modify the
teaching of Tsztoo to integrate the symbol memory buffer of the base station

modem with a mobile communication system, in which the symbol data corresponding to at least one logical channel and coded in at least one encoding ratio is stored as taught by Kuehnel et al. One is motivated as such in order to provide cost and transmission efficiency of the wireless system infrastructure **(column 3, lines 44-47)** and to establish communications using unique control of signaling channels between the mobile terminal and the wireless network controller **(column 4, lines 13-22)**.

Regarding claim 2, Tsztoo teaches the symbol buffer memory device **(934, FIG. 9)** as claimed in claim 1, wherein, when storage of symbols corresponding to a predetermined channel has been completed, an initial symbol of a channel is subsequently stored at a position of a word in the buffer memory next to the already-stored symbols **(column 10, lines 12-16, 29-32;** the storing of data symbol among channels is continuous in the buffer**)**. However, Tsztoo fails to explicitly specify said predetermined channel is of a logical channel. Kuehnel et al teach a telecommunication network, with emphasis on wireless mobile telecommunication system, for providing signaling techniques using ATM technology. According to the teaching, the encoded symbol data **(column 6, lines 11-14)** sent from logical channels **(i.e., virtual channels)** are stored in a dedicated memory of a mobile terminal **(column 6, lines 7-10)**. Therefore, it would have been obvious to one with ordinary skill in the art at the time of the invention was made to modify the teaching of Tsztoo to integrate the symbol memory buffer of the base station modem with a mobile communication system, in which the symbol data corresponding to at least one logical channel and coded

in at least one encoding ratio is stored as taught by Kuehnel et al. One is motivated as such in order to provide cost and transmission efficiency of the wireless system infrastructure **(column 3, lines 44-47)**.

Regarding claim 3, Tsztoo teaches the symbol buffer memory device **(934, FIG. 9)** as claimed in claim 1, wherein a selection signal input to the multiplexer (i.e., enable signal sent from **request arbiter 928** to **mux 930**) is produced by reading an enable state of a corresponding channel by means of a pulse signal **(i.e. control signal, column 14, lines 8-12)** of each channel, the enable state of the corresponding channel being stored in the start address table **(i.e., channel address memory 922, FIG. 9)**.

Regarding claim 6, a method of storing symbol data **(i.e., voice data)** in a symbol buffer memory device **(934, FIG. 9)** of a base station modem **(900, FIG. 9)** in a mobile communication system, in which the symbol data is stored in the symbol buffer memory device for transmission of the symbol data to a physical layer **(column 13, lines 38-41)**, the method comprising the steps of:

- storing the symbol data for the logical channel according to input sequences **(i.e., input CHANNEL_ADD, FIG. 9)** so that the symbol data between logical channels are stored in a continuous arrangement **(column 10, lines 12-13, 29-32)**;

- storing address information according to the logical channels **(column 15, lines 51-53)** in a start address table **(i.e., channel address memory 922, FIG. 9)**, each of the address information indicating a location of initial symbol data corresponding to each of the logical

channels from among the symbol data stored in the buffer memory

(column 15, lines 11-21); and

- selectively outputting the address information stored in the start

  address table **(922, FIG. 9)** by an enable signal **(i.e., enable signal**

  sent from request arbiter 928 to mux 930) set for each of the logical

  channels **(column 12, lines 50-54)**.

However Tsztoo et al fail to disclose the symbol memory buffer of the

base station modem belongs to a mobile communication system, in which the

symbol data corresponding to at least one logical channel and coded in at least

one encoding ratio is stored. Kuehnel et al teach a telecommunication network,

with emphasis on wireless mobile telecommunication system, for providing

signaling techniques using ATM technology. According to the teaching, the

encoded symbol data **(column 6, lines 11-14)** sent from logical channels **(i.e.,**

virtual channels) are stored in a dedicated memory of a mobile terminal

(column 6, lines 7-10). Therefore, it would have been obvious to one with

ordinary skill in the art at the time of the invention was made to modify the

teaching of Tsztoo to integrate the symbol memory buffer of the base station

modem with a mobile communication system, in which the symbol data

corresponding to at least one logical channel and coded in at least one encoding

ratio is stored as taught by Kuehnel et al. One is motivated as such in order to

provide cost and transmission efficiency of the wireless system infrastructure

(column 3, lines 44-47) and to establish communications using unique control of

signaling channels between the mobile terminal and the wireless network
controller **(column 4, lines 13-22)**.

Regarding claim 7, Tsztoo teaches the method as claimed in claim 6,
wherein, when storage of symbols corresponding to a predetermined channel
has been completed, an initial symbol of a channel is subsequently stored at a
position of a word in the buffer memory next to the already-stored symbols
(column 10, lines 12-16, 29-32; the storing of data symbol among channels is
continuous in the buffer**)**. However, Tsztoo fails to explicitly specify said
predetermined channel is of a logical channel. Kuehnel et al teach a
telecommunication network, with emphasis on wireless mobile
telecommunication system, for providing signaling techniques using ATM
technology. According to the teaching, the encoded symbol data **(column 6,
lines 11-14)** sent from logical channels **(i.e., virtual channels)** are stored in a
dedicated memory of a mobile terminal **(column 6, lines 7-10)**. Therefore, it
would have been obvious to one with ordinary skill in the art at the time of the
invention was made to modify the teaching of Tsztoo to integrate the symbol
memory buffer of the base station modem with a mobile communication system,
in which the symbol data corresponding to at least one logical channel and coded
in at least one encoding ratio is stored as taught by Kuehnel et al. One is
motivated as such in order to provide cost and transmission efficiency of the
wireless system infrastructure **(column 3, lines 44-47)**.

Regarding claim 8, Tsztoo teaches the method as claimed in claim 6,
wherein a selection signal input to the multiplexer **(**i.e., enable signal sent from

request arbiter 928 to **mux 930)** is produced by reading an enable state of a

corresponding channel by means of a pulse signal **(i.e. control signal, column

14, lines 8-12)** of each channel, the enable state of the corresponding channel

being stored in the start address table **(i.e., channel address memory 922, FIG.

9)**.

4.   Claims 4-5, 9-10 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Tsztoo et al (U.S Patent No. 6,639,915 B1) in view of Kuehnel

et al (U.S Patent No. 5,907,542) and further in view of Witkowski et al (U.S

Patent No. 6,201,789 B1).

        Regarding claims 4-5 and 9-10, Tsztoo and Kuehnel et al teach the

symbol buffer memory device and method as claimed in claims 1 and 6.

However, Tsztoo and Kuehnel et al fail to teach when symbol data for one

channel are divided and stored in at least two storage sectors of the buffer

memory, link information between the storage sectors in which the symbol data

for said one channel are stored is stored in the buffer memory and in the start

address table. Witkowski et al teach network switch having a plurality of ports for

sending and receiving data packets. It is disclosed the switch includes a memory

having a data packet portion divided into sectors chained together using link

addresses. According to the embodiment, the sectors are initially linked into a

freepool chain of sectors. As data packets are received, a receive sector chain is

created for each network port by pulling sectors from the freepool chain as

needed **(column 3, lines 54-64)**. Hence, the link addresses enable the data

packets stored in different sectors to be transmitted and received in their entirety.

Therefore, it would have been obvious to one with ordinary skill in the art at the time of the invention was made to modify the teachings of Tsztoo and Kuehnel et al to create link information when symbol data for one channel are divided and stored in at least two storage sectors of the buffer memory and store such linking information in the buffer memory and in the start address table as taught by Witkowski et al. One is motivated as such in order to include transmit address links to form transmit packet chain for each port receiving data packets for transmission **(column 3, lines 44-47)**.

Conclusion

5.   Any response to this Office Action should be **faxed** to (571) 273-8300 or **mailed** to:

> Commissioner for Patents,
> P.O. Box 1450
> Alexandria, VA 22313-1450
>
> **Hand-Delivered responses should be brought to**
> Customer Service Window
> Randolph Building
> 401 Dulany Street
> Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khuong Tran, whose telephone number is (571) 270-3522. The examiner can normally be reached Mon-Fri from 7:30AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chirag G. Shah, can be reached at (571) 272-3144. The

fax phone number for the organization where this application or proceeding is

assigned is 703-872-9306.

Information regarding the status of an application may be obtained from

the Patent Application Information Retrieval (PAIR) system. Status information

for published application may be obtained from either Private PAIR or Public

PAIR. Status information for unpublished application is available through Private

PAIR only. For more information about the PAIR system, see http://pair-

direct.uspto.gov. Should you have question on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-

free).

/K. T./

May 16, 2008

/Chirag G Shah/

Supervisory Patent Examiner, Art Unit 2619